NMS 8245

PRODUCT PROFILE

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INTRODUCTION

The NMS 8245 is the latest addition to the range of Philips NMS consoles. It is the successor to the VG 8235, a computer in the medium price range, and is targeted at general family use, as well as the more professional users in some cases. These target groups are also reflected in the choice of bundled software.

The NMS 8245 matches the current market trend for increased functionality at a constant price level. Compared with its predecessor the VG 8235, the NMS 8245 has a number of enhanced features:

- doubled disk capacity (double-sided disk drive)
- even more complete bundled software
- an improved software feature list

The NMS 8245 will be introduced in September 1987, and will offer excellent value for money in the market segment of medium-priced computers for use in the home.
Its functionality and user benefits are further supported by the availability of the complete NMS range of compatible peripherals and software.

1. TARGET GROUPS

The target groups for the NMS 8245 computer are heterogeneous in a number of respects:

- in age, they range from approximately 8 to 50 in terms of the actual users themselves, and from approximately 15 to 50 in terms of the buyers.

- in purchasing motivation (based on the perceived user benefits), they include those who buy it for productivity purposes, and those who buy it for computer literacy and/or entertainment.

It is essential to differentiate between the users and the buyers in analysing the target group for the NMS 8245.

Mainly, the NMS 8245 will be bought by older people with parental status (age from about 30 to 50), as a gift for their children. In these cases, the purchasing motivation is computer literacy.
In other cases, the NMS 8245 will be bought by older people (age from about 20 to 50), for their own use. The purchasing motivation is then mainly productivity (e.g. work at home or small business use), or in some cases computer literacy.

In terms of the users, the majority may be expected to be youngsters aged from 8 upwards. Market research shows that the most important applications for this target group are games and computer literacy.

2. APPLICATIONS AND USERS

The NMS 8245 is ideal for use in the following application areas:

a. (Home) productivity (for study and/or hobby purposes), and possibly extended by data communication

b. (Home) entertainment (creativity and/or games)

c. Computer literacy

The users can best be described in terms of these distinct application areas:

a. (Home) productivity

Students

- age 15 to 25, both sexes, but the majority male
- buy the product and/or add-ons with their own money, or receive the computer as a gift
- the computer is used at home (where the subject studies)
- the main use is for text and files
- the main purchasing motivation is word processing: the computer is purchased as a tool to make life easier, and to increase productivity

Older people (parental age group)

- age 20 to 50, mainly male
- the product and/or add-ons is bought with their own money, but acquisition of add-ons is more likely through gifts
- the product is used at home (study or living room)
- the product is used for text and files (e.g. club activities), or home accounting
- the main purchasing motivation is word processing: here again, the computer is purchased as a tool to make life easier, and to increase productivity
- in some cases, the product is regarded as a status symbol

Note: in some countries, the productivity applications could be further extended by addition of the data communication application.
The NMS range includes a software package and data communication module for this application.

b. (Home) entertainment

Youngsters (1)

- age 8 to 12, both sexes, majority male
- product ownership through gift only (also applies to add-ons)
- the product is used both in the living-room, and in the user's own room
- the main use is for games (e.g. arcade-style action games) or other (simple) entertainment software packages
- the main purchasing motivation is computer literacy (in which the computer represents a parental investment in the child's education)

Youngsters (2)

- age 12 to 18, mainly male (although female also possible)
- product ownership is mainly through gift (also applies to add-ons)
- the product is used in the living-room or in the user's own room
- the main use is for games (e.g. adventure games), or other (more sophisticated) entertainment software packages
- the main purchasing motivation is computer literacy and as a study support tool (again representing a parental investment in the child's education)

Older age group

- age 18 to 35, mainly male
- buy the product with their own money, acquisition of add-ons may also be through gifts
- the product is used in the living room or study
- its uses are: sophisticated games packages, music, graphics
- the main purchasing motivation is in applications such as more advanced productivity and/or computer literacy

c. Computer literacy

- a variety of heterogeneous groups (e.g. 'freaks')
- mainly male, all ages
- ownership either through gift or purchased with own money, add-ons are purchased regularly
- the product is used in a hobby or study room
- the main use is programming and gaining experience and skill in using the computer
- the main purchasing motivation is to learn about computing, or to upgrade by purchasing a more powerful computer (such as the NMS 8245) than the one used in the initial learning process

3. PRODUCT DESCRIPTION

The commercial features of the NMS 8245 are best listed in comparison with its predecessor the VG 8235, and another of our NMS products, the NMS 8250.

The comparative specification survey shown below clearly illustrates the enhanced specification of the NMS 8245, in comparison with the VG 8235.
The bundled application software supplied with the NMS 8245 greatly enhances the performance and functionality of this computer in terms of its user benefits.

** Specification comparison VG 8235/NMS 8245/NMS 8250 **

Floppy disk drive

- o built-in 3.5-inch floppy disk drive, double-density double-sided with 720 KB capacity (formatted) (additional single- or double-sided drives can be connected externally using NMS 1200 floppy disk drive interface cartridge)

Keyboard

- o professional-type keyboard with 72 or 73 keys (depending on version)
- o concave keyboard design for ergonomic operation
- o dedicated versions to support specific language characteristics

Memory

- o 256 KB RAM
- o RAM-disk function
- o memory mapping
- o 64 KB ROM with BIOS/BASIC including disk control

Display

- o full 80-column screen display in text mode
- o V9938 video processor with 128 KB video memory
- o 512 x 212 bit-mapped display with choice of any 16 colours out of a total of 512
- o alternate lower-resolution graphic mode offers choice of 256 colours in 256 x 212 bit-mapped display
- o 424 lines can be displayed by interlacing ('TV mode')
- o fast graphics operations including line drawing, paint, screen copy
- o extended sprite functions (up to 8 sprites per line, and 16 different colours per line)

Interfaces

- o 2 cartridge slots for ROM/RAM cartridges and other options
- o 2 I/O interfaces for hand controls, mouse, graphic tablet and other dedicate control functions
- o built-in printer interface
- o built-in data recorder interface
- o RF output on ch. 36
- o monitor output (DIN) with luminance signal for monochrome monitors
- o Euroconnector (SCART) output for RGB signals

1 Mains connector
2 TV connector
3 Monitor connector (CVBS)
4 Euroconnector (RGB)
5 Data recorder connector
6 Parallel printer port
7 Cartridge slot no. 2

8 Reset button
9 Power indicator (green)
10 Caps indicator (green)
11 FDD active indicator (yellow)
12 Cartridge slot no. 1

13 2 I/O ports for hand controls, mouse or graphics tablet
14 Diskette slot
15 Diskette eject button

NMS 8245 SYSTEM SPECIFICATIONS

CPU	Z-80A
RAM	256 KB
ROM	64 KB (48 KB for MSX-2, 16 KB for FDD control)
Video processor	9938
Video display	Text 80 x 24 or 40 x 24 char. Graphics 512 x 212, 256 x 212 pixels or 512 x 424 pixels with interlacing
Colours	256 different colours, or any 16 out of 512
Sprites	Max. 256, up to 8 per line
Audio processor	S-3527
Sound capability	8 octaves, 3-tone chord
Real-time clock	Month, week, day, hour, minute, second with battery back-up

Keyboard

Type	Full-travel membrane keyboard from 5 - 12°, concave profile with sculpted keys
No. of keys	72 or 73
Indicators	Power on (green) Caps. (green) FDD active (yellow)

Connections

MSX expansion slots	2, at top and rear
Printer interface	Centronics (parallel)
Monitor	Euroconnector (SCART) for RGB/CVBS, and DIN connector for CVBS/luminance
TV	RF connector (UHF ch. 36)
Other connectors	Cassette data recorder 2 I/O ports for hand controls, mouse or graphics tablet

Floppy disk drive

Type	3.5-inch, double-sided, double-density
Capacity	720 KB (formatted) 80 tracks/side, 9 sectors/track, 512 bytes/sector

Power supply

220 V_{AC}, 50 Hz; consumption 28 W
IEC 65

Environmental conditions

Operating temperature 5 to 35°C

Dimensions

400 x 275 x 85 mm (W x D x H)
Weight 3.0 kg

BLOCK DIAGRAM NMS 8245

** Block diagram NMS 8245 system architecture **

NMS 8245 MEMORY ALLOCATION

** Diagram NMS 8245 memory allocation **

NMS 8245 VIDEO PROCESSOR

** Diagram NMS 8245 video processor **

The V9938 MSX video processor is a 64-pin VLSI with the following extended functions and modes:
Output: Linear RGB and CVBS.
A maximum of 8 sprites can be displayed per horizontal line, and 32 sprites per screen.
The built-in colour palette allows selection of one of 512 colours; simultaneous display of 4, 16 or 256 colours is possible, depending on mode.
A maximum of 512 x 424 pixels can be displayed with 16 colours.
Video RAM capacity is 128 KB.
Commands available in command execute function are AREA MOVE, LINE, SEARCH and LOGICAL OPERATION.

Display modes

Text I	40 characters per line
Text II	80 characters per line
Graphics I	
Graphics II	
Graphics III	Enhanced sprite functions (8 sprites per line)
Graphics IV	256 x 192 pixels, 16 colours
Graphics V	512 x 192 pixels, 4 colours
Graphics VI	512 x 192 pixels, 16 colours
Graphics VII	256 x 192 pixels, 256 colours

Vertical display line number in the BIT MAP display mode can be doubled (212 --> 424, 192 --> 384) when INTERLACE and EVEN/ODD bits are specified by above register.
Extended status functions are implemented on status registers 1 - 9.
Command functions include additional commands to reduce CPU load and improve software performance:

- o High speed move (byte operation)
- o Logical move (dot operation)
- o Line command
- o Search command
- o Pset
- o Point

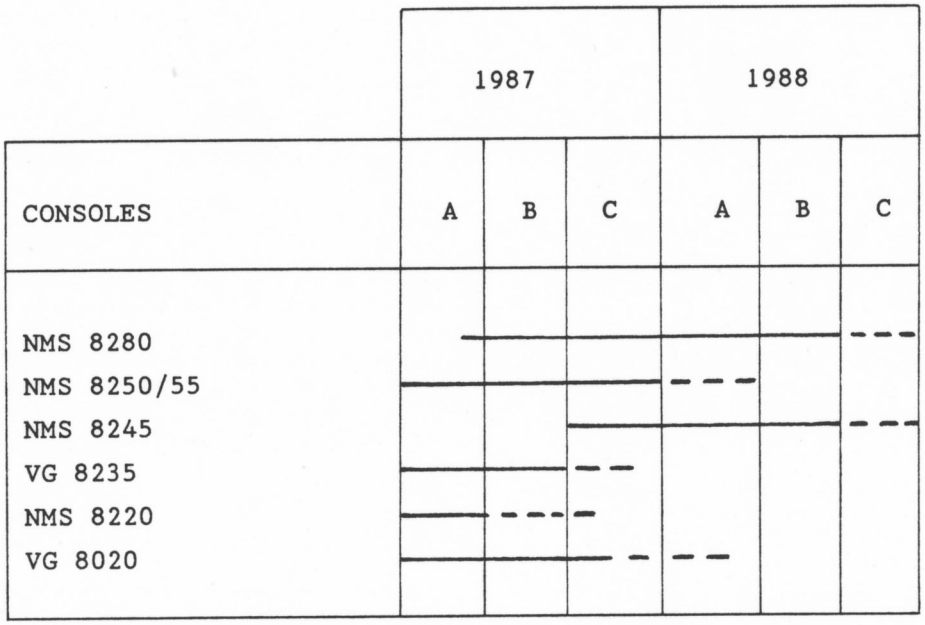
The MOVE command can execute between VRAM <--> VRAM, REGISTER --> VRAM and CPU <--> VRAM.

NMS 8245 ADDITIONAL MSX-BASIC STATEMENTS

The NMS 8245's extended MSX-BASIC interpreter provides the following additional MSX-BASIC statements specifically oriented towards the extra capabilities of the NMS 8245 and other MSX-2 computers:

SCREEN	assign new screen modes
SET PAGE	select screen pages
WIDTH	extended for up to 80 char./line
LOCATE	extended for cursor handling
COLOR	extended for additional colours
COLOR SPRITE	set sprite colour
COPY	extended for video RAM handling
CIRCLE	extended
LINE	extended
PAINT	extended
PSET	extended
PRESET	extended
VDP	extended
SET VIDEO	activate superimpose
VPEEK	extended
VPOKE	extended
BSAVE	extended
BLOAD	extended
BASE	extended
GET DATE/TIME	get date/time from clock chip
SET DATE/TIME	set date/time in clock chip
SET ADJUST/BEEP/TITLE/PASSWORD/PROMPT/SCREEN	set parameters in non-volatile RAM
device name MEM:	assign RAM disk
CALL MEMINI/MFILES/MKILL/MNAME	handle RAM disk files
PAD	extended

4. PRICE SETTING AND SCHEDULING



Note: NMS 8245 to be introduced in September 1987

Price setting (Dfl.)

	1987 DSC	1988 DSC
NMS 8280	1.085,-	1.085,-
NMS 8250/55*	837,-/1.009,-	837,-/1.009,-
NMS 8245	530,-	530,-
VG 8235	530,-	to be determined
NMS 8220	345,-	to be determined
VG 8020	187,-	not applicable

* monthly adjustments

5. BUNDLED SOFTWARE DESCRIPTION

The NMS 8245 is offered as standard with the comprehensive bundled EASE (Enhanced Application Software Environment) software package, which is supplied on one double-sided diskette. The EASE package contains two major items:

- the EASE software environment itself, which provides a very attractive and easy-to-operate graphic user interface
- the EASE applications - a complete package of programs for productivity applications, as well as the Designer Plus creative graphics program

THE EASE SOFTWARE ENVIRONMENT

Operation of EASE and its applications is made even easier using the optional mouse; although the cursor keys can also be used successfully.

Characteristic features of the EASE user interface are:

- Windows, or defined areas on the screen in which information is displayed and certain operations are performed. The sizes and positions of these windows can be changed if the user wishes
- Icons, or graphic representations of the available programs, files and system attributes
- Pull-down menus, which can be selected instantly by pointing and clicking. When activated, the pull-down menus show lists of choices for file operations and system functions, which can be accessed instantly.

The EASE environment means that the need for the user to remember and to enter complex operating system commands is eliminated, making the system much simpler and friendlier to use.

EASE includes a number of extras for additional convenience in use. These are a clock, a calculator, a diary and a notebook, all of which can be called-up for instant use at any time - even when using one of the programs - by simple use of the mouse.

** Pictures of desktop showing icon display with pull-down screen and text display **

The EASE desktop, showing an icon display of the available programs together with the pull-down VIEW menu for display options, and a text display showing the directories of drives A and B (drive B optional).

** Pictures of desktop showing 'Controls' window and diary/calculator **

The EASE Desktop provides facilities for setting a wide range of system parameters and options. The CONTROLS window is used to set window sizes and positions, background colours, date, time and alarm settings etc. EASE desktop accessories like diary and calculator can be called onto the screen instantly at any time, even while an EASE application is being used.

THE EASE APPLICATIONS

The EASE applications provide a complete package of productivity applications, together with the Designer Plus creative leisure program. The applications are:

- WORDPRO word processor incorporating a desktop publishing program for professional-style page and text layout
- DATABASE filing program for information storage
- CHARTS business graphics program for the graphic representation of user data
- CALCFORM spreadsheet for automatic calculation of data involving a number of variables entered in tabular form

i) WORDPRO word processor

WORDPRO offers a full-function word processor with very simple operation thanks to the EASE software environment. Representation on the screen follows the WYSIWYG principle (What You See Is What You Get), in which attributes like different character sets (fonts), bold, underlining etc. are displayed on the screen exactly as they will appear when printed on paper.
The addition of a desktop publishing capability to the WORDPRO program offers a valuable extra capability for creating professional-style documents with features like different type styles, flexible text layout in blocks and columns of different sizes and the ability to incorporate graphics in finished documents.

** WORDPRO pictures showing type styles + selection menu, and DTP layout with boxes for text blocks **

WORDPRO is a very easy-to-use word processor with a WYSIWYG on-screen display of different type styles. Also included is a desktop publishing program that allows professional-style layouts to be created quickly and simply.

ii) DATABASE

The DATABASE filing program brings unprecedented simplicity of operation to personal and business information storage. The windows and pointer operation of the EASE operating environment make it very simple to design and create the records forming a personalized database.
Designing custom reports is just as easy, so that the information entered into the database can be presented in any desired way. The powerful database program is able to store large volumes of data, extending to many thousands of records.

** DATABASE pictures showing creation of records and customized reports **

The DATABASE program makes creation and use of a personalized database simpler than ever! These pictures show the creation of records - in this case for a list of names and addresses - and the preparation of a report in which the information in the database is displayed or printed in a desired way.

iii) CHARTS

The CHARTS business graphics program allows data from the CALCFORM spreadsheet to be displayed and printed in any of a selection of 6 different graphic styles - including line graphs, 2- and 3-dimensional bar graphs and 'pie charts'. Texts can be typed-in simply for captions or other explanations of the data.

** CHARTS pictures showing selection menu for different types of graphics and a 'pie chart' **

The CHARTS program allows the preparation and printing of business graphics using 6 different styles of representation. These pictures show a bar graph with the selection menu for the different types of graphics, and a 'pie chart' representation of the same data.

iv) CALCFORM spreadsheet

CALCFORM is a professional-style spreadsheet which offers the simple operation of the EASE software environment together with all the functions that spreadsheet users demand. Maximum spreadsheet size is up to 255 x 255 cells. A range of math functions can be specified for automatic computation in the spreadsheet, and explanatory texts can be added where required.

** CALCFORM pictures showing selection of math functions and selection of group of cells for display **

The CALCFORM spreadsheet offers the simple operation of the EASE environment, plus full professional-style features. Shown here are the possibility of selecting math functions plus display of a selected group of cells out of the total spreadsheet.

v) DESIGNER PLUS

Designer Plus is a creative leisure and graphic design program that offers virtually unlimited 'draw' and 'paint' functions using all the possible colours of the Philips NMS 8245 computer.
Designer Plus operates separately from the EASE environment, and has its own structure of icons and commands. However, the principle of operation is the same, with the cursor keys, mouse or graphic tablet being used for commands and graphic input, as well as for selection of the desired functions.

** Designer Plus pictures - to be selected **

Designer Plus makes creating an unlimited variety of colour graphic designs fast, easy and enjoyable. This program is completely menu-driven, so all commands, selections and other inputs can be made directly and instantly.
All standard 'draw' and 'paint' functions are provided, and so is a choice of no less than 512 different colours.

6. COMPETITION

The main competition to the NMS 8245 comes from the following machines:

- CPC 6128 (colour)
- Amstrad PC 1512
- Atari 1040 ST+
- Atari PC
- Commodore C-128D
- Commodore Amiga 500
- Commodore PC-1 (and numerous other PC/XT clones and compatibles)

** table Competition Survey **

NMS 8245 MAIN SELLING PROPOSITIONS

** Table NMS 8235/competition main selling propositions **

7. PROMOTION AND ADVERTISING

Our promotional plans for 1987/88 call for maximum emphasis to be placed on the NMS 8280 VideoGraphics system as 'flag-carrier' for the Philips MSX range. Accordingly, the NMS 8245 will be presented as a 'step-down' model for users who do not need the specific video-oriented features of the NMS 8280 (or who do not wish to pay this model's higher price). In line with this strategy, media advertising will be concentrated on the NMS 8280 to create the desired brand profiling. In consultation with the major NOs, it has also been decided not to produce extensive promotional materials for the NMS 8245 centrally, apart from those shown in the list on the following page.

However, a wide range of below-the-line promotional activities remain possible for the NMS 8245.
For example, local promotional activities can be organized in co-operation with dealers, which can also have the effect of providing extra motivation for dealers.
Exhibitions can also provide valuable promotional opportunities for the NMS 8245; particularly those which are likely to be visited by the target group for this machine.
Press relations opportunities can also be exploited, for example in national MSX magazines or local newspapers (e.g. in combination with a feature sponsored by a local dealer).

In all promotional activities for the NMS 8245, the emphasis should be placed on the EASE software package (see Section 5 of this Product Profile). It is the complete and simple-to-use EASE software package which makes the NMS 8245 such a unique and attractive product, and not the characteristics of the computer itself. The best way to communicate the benefits of the EASE package is by display and demonstration in the retail outlets, or in promotional material by using screens that show the simple operation of EASE (with WYSIWYG text display, plus Windows, Icons, Mouse and Pull-down menus).

Specific promotional materials to be prepared by NMS communications for the NMS 8245 include:

- a low-cost folder describing the combined NMS 8245/EASE package, but with the emphasis on EASE. Design and text proposals for this folder will be sent to NOs separately
- a press release for the NMS 8245/EASE package
- a picture library, including pictures of hardware, but particularly of screen photos showing the operation of EASE and the EASE applications (see Section 5 for further information and photos of EASE applications).

8. MSX-2 PERIPHERALS RANGE

The available range of optional NMS peripherals for use with the NMS 8245 computer is as follows:

VS 0040 Monochrome Monitor
VS 0080 Colour Monitor
NMS 1421 Near Letter Quality matrix printer
NMS 1431 Letter Quality matrix printer
NMS 1510 Cassette Data Recorder
NMS 1112 Joystick
NMS 1115 Joystick
NMS 1150 Graphic Tablet
NMS 1170 Bar Code Reader
NMS 1255 Data Communication Package
NMS 1205 Music Module
NMS 1160 Music Creator keyboard + software
SBC 3810 Mouse

Leaflets giving full information about all these products are included as appendixes to this Product Profile.

9. NMS 8245 SYSTEM CONFIGURATIONS

A selection of possible NMS 8245 system configurations, together with lists of the required peripherals, are shown on the following pages.

These configurations are:

- Productivity
- Creative leisure
- Games
- Music
- Data communication

10. DISTRIBUTION

No uniform European picture can be drawn for the distribution of MSX computers and their related equipment.

In general, it can be said that key outlets have proven to be the major department stores and/or major buying co-operations (e.g. store groups and assocations).

The channels which should be favoured and emphasized are those which already provide, or which are prepared to provide, strong sales support at the Point of Sale. This is, of course, most likely to be achieved when corresponding efforts are made by Philips to support these channels with suitable materials, for example:

- appropriate advertising and promotional activities
- POS, display and other in-store promotional materials
- product training for the shop-floor personnel

This ideal scenario cannot be achieved without a clear committment from Philips to support our important trade partners in selling a communication-intensive product.

11. SERVICE

The NMS 8245 is considered as maintenance-free, for the electrical components and for the disk drive.
However, in case of incidental statistical failures, the service organization is fully equipped to provide the necessary service.
Specific service support facilities available include:

- Service test cartridge which enables service to check the unit without opening it
- Alignment diskette to test the disk drive (to be used in combination with exerciser)
- Spare parts provided from Concern Service, only to be ordered by NSO
- Documentation provided to support the service engineer

For any further technical assistance that may be required, a central contact point is available at CE Service, Eindhoven, on telephone no.: 040 - 736105.